

TRANSFORMATIONS FOR DENOISING IMAGES

ABSTRACT

Systems and methods of denoising images are described. In one aspect, spatially-shifted forward transforms of the input image are computed. Each
5 forward transform is computed based on a denoiser transform Z having an associated transpose Z' , wherein a matrix multiplication between Z and Z' produces a diagonal matrix Λ , $Z = F(D)$, F specifies a mapping from coefficients of D to coefficients of Z , and D substantially corresponds to a frequency-domain transform. The forward transforms are denoised based on nonlinear mappings
10 derived from quantization values linked to the input image. Spatially-shifted inverse transforms of the denoised forward transforms are computed. Each inverse transform is computed based on Z and Z' . An output image is computed based on a combination of spatially-shifted inverse transforms.